



# Wage Against the Machine: A Generalized Deep-Learning Market Test of Dataset Value

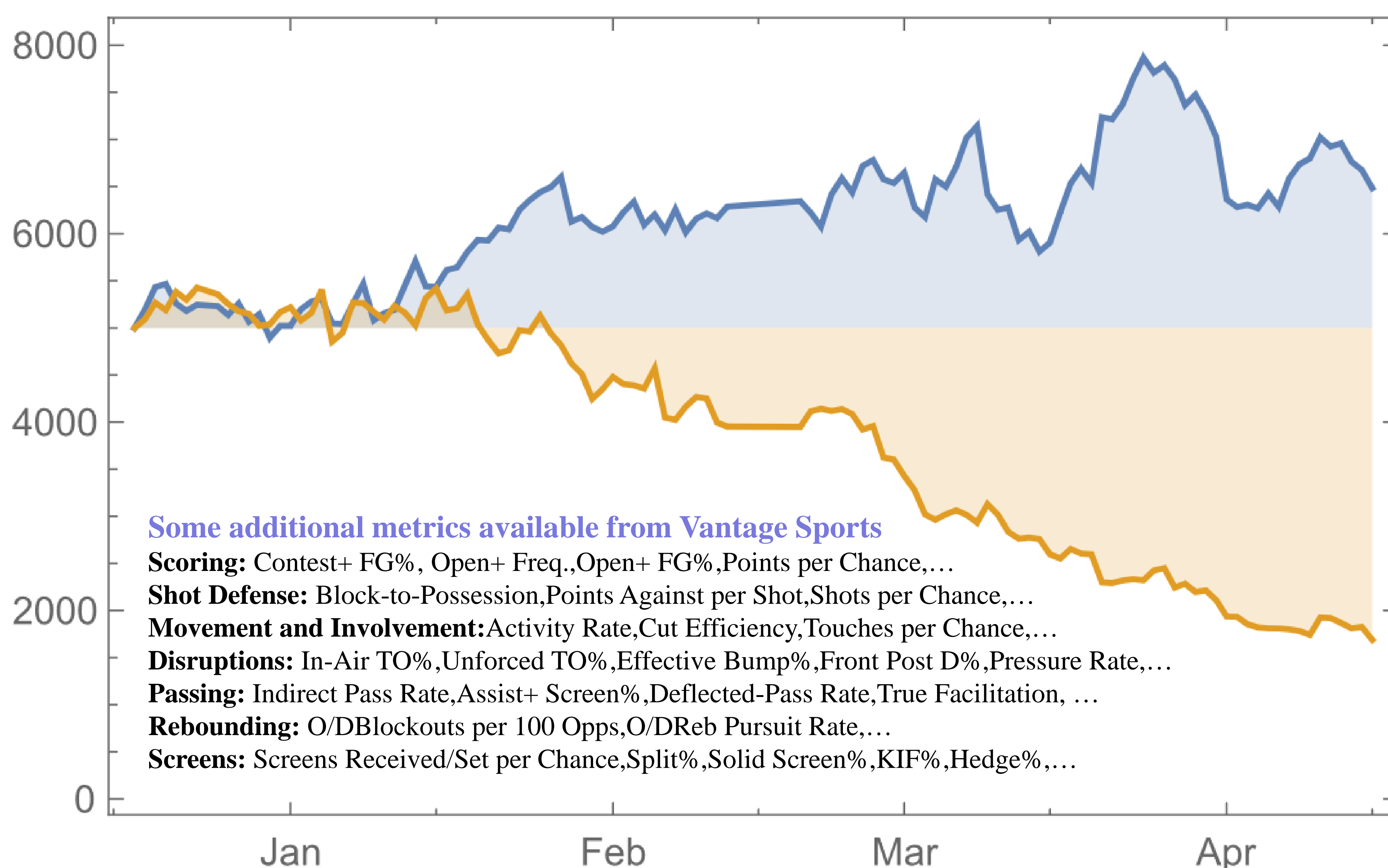
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## How can you tell if a particular sports dataset really adds value?

(In other words: does measuring whether a hand was up on defense *matter*?)

If you ask one genius to extract all possible insights from dataset X, and another genius to extract all possible insights from datasets X+Y, if the first genius is smarter or luckier or both, he may get more insights from less data. What's the solution?

**Use deep-learning on both datasets to try to outperform betting markets.**



Starting with an initial bankroll of \$5,000, the daily rolling deep learning algorithm **using the standard NBA dataset** is correct on 49% of wagers and ends the season with \$1,700. This means that the standard dataset combined with deep learning is unable to do better than a coin toss. (Indeed, the 49% is not statistically significantly different from 50%.) This should not be surprising, as the betting markets are indeed quite efficient, and we should expect that they incorporate all standard publicly available information.

**Using additional Vantage Sports data**, the algorithm is correct on 54% of wagers and ends the season with \$6,500. The difference is highly statistically significant ( $p\text{-value} < 0.01$ ). And it exceeds the breakeven probability.